On July 29, 2020, at 6:07 a.m. local time, in Tempe, Arizona, westbound Union Pacific Railroad (UP) freight train MTUPX-29 derailed 12 cars near milepost (MP) 914.1. The derailment occurred as the train traveled over a wooden trestle leading up to a steel superstructure bridge over Tempe Town Lake. (See figure 1.) The derailment resulted in the release of hazardous material and a subsequent fire. The train crewmembers were not injured. UP estimated damage to be between $8 and $10 million.

Figure 1. Aerial photograph of derailed train, damaged trestle, debris, and fire suppression efforts. (Source: UP.)
The train consisted of 3 locomotives and 97 mixed-freight cars (89 loaded cars and 8 empty cars) and was operating on a single main track. The train was 6,895-feet long with 11,194 trailing tons. Of the 12 derailed cars (in positions 49 through 60), three tank cars were loaded with the hazardous material cyclohexanone. Two of these tank cars fell from the trestle and one released 2,201 gallons of cyclohexanone. A third tank car partially derailed but was not breached.

The wooden trestle was extensively damaged where it abuts the concrete pier supporting the first steel superstructure. The trestle and railroad equipment fell onto the Rio Salado Parkway and resulted in its closure to suppress the fire and mitigate the hazardous materials spill.

The Federal Bureau of Investigation (FBI) conducted an initial investigation to uncover any evidence of criminal activity; however, none was found. The NTSB subsequently formed technical working groups to examine all aspects of the accident scene. Investigators accessed the lead locomotive and downloaded event recorder and video data from the forward-facing video recorder for analysis. Based on the preliminary data from the event recorder, the train was traveling at a speed of 23 mph at the time of the derailment. Investigators inspected the track and bridge structures, the hazardous materials cars, and the mechanical equipment. Investigators interviewed the train crew and are collecting and examining maintenance records. A UP aerial drone documented the extent of the derailment and damage to the track and structures.

At the time of the accident, the sky was clear with 10 miles of visibility. Wind was blowing from the north-northwest at 5 to 8 mph. Air traffic from Phoenix Sky Harbor International Airport was diverted away from the derailment area due to heavy black smoke from the fire. One emergency responder was taken to the hospital for smoke inhalation. An evacuation of a small area near the accident was initiated as a precaution.

All aspects of the Tempe, Arizona, accident remain under investigation as the NTSB determines the probable cause, with the intent of issuing safety recommendations to prevent similar accidents. Parties to the investigation include the Federal Railroad Administration, the Arizona State Corporate Commission, City of Tempe, Union Pacific Railroad, the Brotherhood of Maintenance of Way Employes Division, the Brotherhood of Locomotive Engineers and Trainmen, and the International Association of Sheet Metal, Air, Rail and Transportation Workers-Transportation Division.

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1 Cyclohexanone is flammable as a liquid or vapor. Exposure can cause eye and skin irritation, respiratory tract irritation, and may cause central nervous system effects.

2 The Brotherhood of Maintenance of Way Employes Division spells the word “Employes” in its name with one “e”. Therefore, we are using that spelling in this report.